

**Washington State Department of Health
Office of Maternal and Child Health
ORAL HEALTH PROGRAM**

2005 Smile Survey Results Summary

Background

The Washington State Department of Health recently conducted a statewide oral health survey of approximately 8,900 preschool, elementary school and Native American children. The 2005 SMILE Survey is the third such survey occurring in Washington State, with the others having been conducted in 1994 and 2000. During the 2004-2005 school year, a team of dentists and dental hygienists screened the children at 66 randomly selected elementary schools, 39 randomly selected Head Start/ECEAP sites, 6 tribal Head Start sites and 9 tribal elementary schools. In preparation, these professional dental teams attended one all day training. Screenings were conducted using gloves, a penlight, and a disposable dental mirror. Of the enrolled 2nd and 3rd graders, 79 percent were screened, while 83 percent of the enrolled preschoolers were screened. In addition to the statewide survey, individual counties also conducted their own SMILE surveys. Counties received training on screening techniques as well as the software needed to analyze these findings. Demographic variables used included gender, race/ethnicity, language spoken at home, and eligibility for the free and/or reduced price lunch program (FRL) as a proxy for overall socioeconomic status.

Key Findings

While improvements have been made in Washington, additional work is needed. For example, rates of tooth decay in Washington children are higher today than they were in 1994 and 2000. More specifically, 59 percent of elementary school children and 45 percent of low-income preschool children have cavities and/or fillings (also known as decay experience). Significant oral health disparities prevail among minority, low-income, and non-English speaking children; with these children having the lowest levels of dental sealants and highest levels of dental disease. Overall, the prevalence of dental sealants has remained stable over the past five years, although access to preventive sealants has increased since 1994. In comparison to other states' oral health, Washington has a lower prevalence of untreated decay among both Head Start and elementary school children, following only Nebraska and Vermont. Additionally, dental sealant prevalence is higher in Washington than in many other states.

Healthy People 2010 Objectives

According to 2005 SMILE Survey results, Washington has reached the Healthy People 2010 objective (21-2) of reducing the prevalence of untreated tooth decay among elementary school children. Other applicable Healthy People 2010 objectives that Washington is seeking to attain include: reducing the proportion of children and adolescents who have dental caries experience in their primary or permanent teeth (21-1), increase the proportion of children who have received dental sealants on their molar teeth (21-8), increase the proportion of the U.S. population served by community water systems with optimally fluoridated water (21-9), increase the proportion of children and adults who use the oral health care system each year (21-10), and increase the proportion of low-income children and adolescents who received any preventive dental service during the past year (21-12).

Results

The following tables highlight some of the results from the 2005 SMILE Survey. Additional information can be found in the complete report at: http://www/cfh/Oral_Health/index.htm. Adjustment for non-response varies by table, therefore extra attention should be noted when viewing these results.

Table 1. Oral Health Status of 2nd and 3rd Graders in Washington State
(Adjusted for non-response)

| Screenings | 2 nd Grade (n=3,657) | 3 rd Grade (n=3,632) |
|-------------------------------------------------------|------------------------------------|------------------------------------|
| % with decay experience (primary and permanent teeth) | 58.2 (54.7-61.7) | 59.7 (56.6-62.8) |
| % with decay experience (permanent teeth) | 20.7 (16.4-25.0) | 23.8 (19.0-28.6) |
| % with untreated decay | 20.4 (18.0-22.7) | 19.1 (16.7-21.5) |
| % with rampant decay* | 21.3 (18.1-24.4) | 21.2 (17.8-24.5) |
| % with dental sealants | 39.3 (35.3-43.3) | 50.4 (46.8-54.1) |
| % needing treatment | 19.1 (15.1-23.2) | 17.0 (13.9-20.0) |
| % needing urgent treatment+ | 3.3 (2.3-4.3) | 3.2 (2.2-4.2) |

* Rampant caries: 7 or more teeth with treated and/or untreated decay.

+ Urgent dental care: Dental treatment within 24 hours because of pain or infection.

Table 2. Oral health of Washington's 2nd and 3rd Grade Students 2000 and 2005
(Not Adjusted for Non-Response)

| Screenings | SMILE Survey 2000 (n=2,699) | SMILE Survey 2005 (n=7,291) |
|----------------------------------------------------------|--------------------------------|--------------------------------|
| % with decay experience (primary and/or permanent teeth) | 55.6 (53.7-57.4) | 59.0 (57.9-60.1) |
| % with decay experience (permanent teeth) | 15.3 (14.0-16.8) | 22.1 (21.1-23.0) |
| % with untreated decay | 20.9 (19.4-22.5) | 19.8 (18.9-20.8) |
| % with rampant decay | 15.2 (13.9-16.7) | 21.6 (20.6-22.5) |
| % with dental sealants | 47.2 (45.3-49.1) | 44.6 (43.4-45.7) |
| % needing treatment | 21.5 (20.0-23.1) | 18.0 (17.1-18.9) |
| % needing urgent treatment | 3.5 (2.8-4.2) | 3.3 (2.9-3.7) |

Table 3. Oral Health Status of Head Start/ECEAP children in Washington

| Screenings | All Children | 3-5 Year Olds |
|----------------------------------|--------------------------------|--------------------------------|
| % with decay experience | 44.9 (42.0-47.8) n=1,181 | 45.1 (42.3-48.0) n=1,172 |
| % with untreated decay | 24.8 (22.4-27.4) n=1,181 | 25.0 (22.6-27.6) n=1,171 |
| % with rampant decay | 15.3 (13.3-17.5) n=1,182 | 15.3 (13.4-17.6) n=1,173 |
| % with early childhood cavities* | 17.7 (15.5-20.0) n=1,132 | 17.7 (15.6-20.1) n=1,123 |
| % needing treatment | 21.5 (19.2-24.0) n=1,182 | 21.5 (19.2-24.0) n=1,173 |
| % needing urgent treatment | 4.5 (3.4-5.9) n=1,182 | 4.5 (3.4-5.9) n=1,173 |

* Early childhood cavities : Treated and/or untreated decay on 1 or more upper front teeth.

Table 4. Oral Health Status of Tribal Head Start and Elementary School Children in 2000 and 2005

| | Head Start (3-5 year olds only) | | 2nd and 3rd Grade | |
|-------------------------|--------------------------------------------|-----------------------|------------------------------------------------|-----------------------|
| Screenings | 2000 n=149 | 2005 n=139 | 2000 n=293 | 2005 n=310 |
| % with decay experience | 75.2 | 78.4 | 83.6 | 86.8 |
| % with untreated decay | 55.4 | 48.2 | 51.5 | 54.5 |
| % with rampant decay | 33.5 | 34.5 | 37.5 | 29.0 |
| % needing treatment | 53.0 | 46.8 | 51.0 | 55.5 |
| % with sealants | | | 43.8 | 56.3 |
| % with ECC | 38.9 | 40.3 | | |

Important Findings

Elementary School

Of the 9,209 students enrolled, 7,291 children were screened, for a response rate of 79 percent. For overall results, see Tables 1 and 2. The racial/ethnic distribution of children who participated in the 2005 SMILE Survey is consistent with the distribution in Washington State. The majority of children screened (98.3 percent) of children screened were 7-9 years old, with the age distribution ranging from 6-11 years. Half of the children were male, 71 percent were white non-Hispanic, 6 percent were African-American, 14 percent were Hispanic, and 86 percent were from English speaking families. Minority (African American, Hispanic, Asian and Native American) children have a significantly higher prevalence of decay experience, untreated decay, rampant caries and dental treatment needs than do non-minority children. Asian, Hispanic, and African American children had a lower prevalence of dental sealants, although the difference was not statistically significant. Additionally, children from non-English speaking families had a significantly higher prevalence of decay experience, untreated decay, rampant decay and dental treatment needs, but a lower prevalence of dental sealant use. Socioeconomic status is often expressed through eligibility for the free and/or reduced price lunch (FRL), and is achieved when the annual family income for a family of four does not exceed \$34,873. Caution should be used when viewing the results of this data (8 percent missing). Children eligible for the FRL program showed a significantly higher prevalence of untreated decay, rampant decay and dental treatment needs. Furthermore, a high correlation was found between race/ethnicity, language, and socioeconomic status.

Preschool Head Start/ECEAP

Of the 1,433 students enrolled, 1,182 children were screened, for a response rate of 83 percent. For overall results, see Table 3. The majority of children screened were 3-5 years of age, with a range of 1-6 years. Half of the children were male, 66 percent spoke English at home and 27 percent spoke Spanish at home. Forty-three percent were white non-Hispanic while 31 percent were Hispanic. The following results reflect 3-5 year old children only (n=1,173). Hispanic and Native American children have a significantly higher prevalence of decay experience when compared to white children. Additionally, Native American children show a higher prevalence of untreated decay, rampant decay, and early childhood caries, when compared to white children. Minority children have a higher prevalence of decay experience, untreated decay, early childhood caries, and dental decay. For low-income Head Start/ECEAP children, language spoken at home was not significantly associated with oral health status.

Native American Children

A total of 142 Head Start children and 310 elementary school students were screened. For the Head Start children between 3-5 years of age (n=139), 78 percent had untreated decay or fillings (decay experience) and 48 percent had untreated decay at the time of the screening. About 47 percent of the children needed dental treatment including 15 percent in need of urgent dental care because of pain or infection. Thirty-five percent had rampant decay and 40 percent had early childhood caries.

Eighty-seven percent of the elementary school children screened had decay experience (untreated decay or fillings) in their primary and/or permanent teeth and 55 percent had untreated decay at the time of the screening. Fifty-six percent needed dental

treatment including 8 percent in need of urgent dental care because of pain or infection. About 29 percent of the Native American 2nd and 3rd grade children in Washington had rampant decay and 50 percent had a dental sealant on at least one permanent molar. For overall results, see Table 4.

Oral Health Trends Over Time

Smile Survey 2005 is the third look at the oral health of elementary school children in Washington State; with previous surveys in 1994 and 2000. While the same diagnostic criteria were used in each of the three surveys, sampling methods and type of consent varied. *Smile Survey 1994* was based on a random sample of schools in targeted high-risk counties while *Smile Surveys 2000 and 2005* were based on a random sample of schools from the entire state. *Smile Survey 1994* screened only second grade children while *Smile Surveys 2000 and 2005* screened both second and third grade children. Passive consent was the predominate consent used in 1994 and 2005 while positive consent was used in 2000.

As the demographics of Washington State have changed, so have the demographics of the children screened during the Smile Surveys. Each year, the proportion of minority children screened has increased. Because of the different sampling strategies, type of consent and the different ethnic makeup, comparisons between the three surveys should be viewed with caution. In 1994 and 2000, the data were not adjusted for non-response. For this reason, the 2005 data used in this comparison is also not adjusted for non-response; making the confidence intervals smaller.

Conclusions

The importance of oral health cannot be minimized or overlooked. Tooth decay is a serious problem that can lead to missed school and work days, increased medical expenditures, pain, discomfort, loss of self-esteem, and difficulty in daily activities. Through results of the SMILE Survey, the oral health of Washington children can be assessed and improvements can be made. Additional results and information on methodology, state-specific comparisons, and national comparisons can be found in the full report of the 2005 SMILE Survey.

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